


Amendments to the Claims

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1. (Original) An isolated nucleic acid molecule encoding the human TREK-1 potassium channel comprising the nucleic acid sequence of SEQ ID NO: 1.
 2. (Original) An isolated nucleic acid molecule encoding a human TREK-1 potassium channel, wherein said TREK-1 potassium channel comprises the amino acid sequence of SEQ ID NO:2.
 3. (Original) An isolated human TREK-1 potassium channel comprising the amino acid sequence of SEQ ID NO:2.
 4. (Original) The isolated human TREK-1 potassium channel of claim 3 comprising an amino acid sequence that is at least 99% identical to SEQ ID NO:2.
 5. (Original) The isolated human TREK-1 potassium channel of claim 3 comprising an amino acid sequence that is at least 97% identical to SEQ ID NO:2.
 6. (Original) The isolated human TREK-1 potassium channel of claim 3 comprising an amino acid sequence that is at least 95% identical to SEQ ID NO:2.
 7. (Original) An isolated nucleic acid molecule encoding the murine TREK-1 potassium channel comprising the nucleic acid sequence of SEQ ID NO:3.

8. (Original) An isolated nucleic acid molecule encoding a murine TREK- 1 potassium channel, wherein said TREK-1 potassium channel comprises the amino acid sequence of SEQ ID NO:4.

9. (Original) The isolated murine TREK-1 potassium channel of claim 8 comprising the amino acid sequence of SEQ ID NO:4.

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cont
10. (Original) The isolated murine TREK-1 potassium channel of claim 8 comprising an amino acid sequence that is at least 99% identical to SEQ ID NO:4.

11. (Original) The isolated murine TREK-1 potassium channel of claim 8 comprising an amino acid sequence that is at least 97% identical to SEQ ID NO:4.

12. (Original) The isolated murine TREK-1 potassium channel of claim 8 comprising an amino acid sequence that is at least 95% identical to SEQ ID NO:4.

13. (Currently Amended) A method for identifying substances having anesthetic properties, wherein said substances produce a reversible state of unconsciousness with amnesia and analgesia in a mammal upon inhalation comprising:

(a) contacting said substances with TREK-1 having SEQ ID No. 2 or 4, or TASK having SEQ ID. No. 5 and variants thereof that are at least 95% identical to SEQ ID. No. 2, 4 or 5, wherein said TREK-1 or TASK are mammalian potassium transport proteins, and wherein said TREK-1 or TASK protein exhibits outward-going potassium rectification; and

(b) determining the potassium transport activity of said TREK-1 or TASK protein, wherein an activation of potassium transport is indicative of said substance having anesthetic properties.

14. (Original) The method of claim 13, wherein said potassium transport protein is TASK

15. (Original) The method of claim 13, wherein said potassium transport protein is TREK-1.

16. (Original) The method of claim 15, wherein said TREK-1 comprises the amino acid sequence selected from the group consisting of SEQ ID NO:2 and SEQ ID NO:4.

17. (Canceled)

18. (Previously Presented) A method for identifying substances having anesthetic properties, wherein said substances produce a reversible state of unconsciousness with concurrent amnesia and analgesia in a mammal upon inhalation comprising:

(a) contacting said substance with COS cells, wherein said COS cells are transfected with a nucleotide vector comprising a nucleic acid molecule encoding TREK-1, wherein said COS cells transiently express said TREK-1 on a surface of said COS cells, and wherein said TREK-1 exhibits outward-going potassium rectification; and

(b) determining the potassium transport activity of said TREK-1 wherein an activation of potassium transport is indicative of said substance having said anesthetic properties.

19. (Previously Presented) A method for identifying substances having anesthetic properties, wherein said substances produce a reversible state of unconsciousness with concurrent amnesia and analgesia in a mammal upon inhalation comprising:

(a) contacting said substance with COS cells, wherein said COS cells are transfected with a nucleotide vector comprising a nucleic acid molecule encoding (SEQ ID NO:2), wherein said COS cells transiently express said amino acid sequence on a surface of said COS cells, and wherein said amino acid sequence exhibits outward-going potassium rectification; and

(b) determining the potassium transport activity of said amino acid sequence wherein an activation of potassium transport is indicative of said substance having said anesthetic properties.

20. (Previously Presented) A method for identifying substances having anesthetic properties, wherein said substances produce a reversible state of unconsciousness with concurrent amnesia and analgesia in a mammal upon inhalation comprising:

(a) contacting said substance with COS cells, wherein said COS cells are transfected with a nucleotide vector comprising a nucleic acid molecule encoding (SEQ ID NO:4), wherein said COS cells transiently express said amino acid sequence on a surface of said COS cells, and wherein said amino acid sequence exhibits outward-going potassium rectification; and

(b) determining the potassium transport activity of said amino acid sequence wherein an activation of potassium transport is indicative of said substance having said anesthetic properties.

21. (Canceled)

22. (Previously Presented) A method for identifying substances havign anesthetic properties, wherein said substances produce a reversible state of unconsciousness with concurrent amnesia and analgesia in a mammal upon inhalation comprising:

(a) contacting said substance with transfected cells, wherein said transfected cells are tarnsfected with a nucleotide vector comprising a nucleic acid molecule encoding TASK, wherein said transfected cells transiently express said TASK on a surface of said transfected cells, and wherein said TASK exhibits outward-going potassium rectification; and

(b) determining the potassium transport activity of said TASK wherein an activation of potassium transport is indicative of said substance having said anesthetic properties.

23. (Previously Presented) A method for identifying substances having anesthetic properties, wherein said substances produce a reversible state of unconsciousness with concurrent amnesia and analgesia in a mammal upon inhalation comprising:

(a) contacting said substance with transfected cells, witherein said transfected cells are transfected with a nucleotide vector comprising a nucleic acid molecule encoding (SEQ ID NO:5), wherein said transfected cells transiently express amino acid sequence on a surface of said transfected cells, and wherein said amnio acid sequence exhibits outward-going potassium rectification; and

(b) determining the potassium transport activity of said amino acid sequence wherein an activation of potassium transport is indicative of said substance having said anesthetic properties.

24. (Canceled)

25. (Original) The method of claim 22, wherein said transfected cells are selected from the group consisting of COS cells, HELA cells, *Spodoptera* cells, *Xenopus* oocytes, embryonic kidney cells, Chinese hamster ovary cells, and fibroblasts.